

## WHAT IS CLAIMED IS:

- 1 1. A method comprising the steps of:
  - 2       accessing a first index table;
  - 3       accessing a first plurality of macroblock information in a first order at a
  - 4             video decoder to generate a first decoded image, wherein the first
  - 5             order is based upon the first index table and the first plurality of
  - 6             macroblock information are associated with a source macroblock;
  - 7       accessing the first plurality of macroblock information to generate a first
  - 8             estimated destination motion vector; and
  - 9       wherein the macroblock information includes motion vector and
  - 10            quantization information.
- 11 2. The method of claim 1, further comprising the step of:
  - 12       generating an encoded a destination video image based upon the first
  - 13       decoded image and the estimated destination macroblock information.
- 14 3. The method of claim 1, wherein the first index table includes a plurality of
- 15       entries, each one of the plurality of entries comprising a pointer portion to
- 16       hold a value indicating a location of a source macroblock information with
- 17       an end of destination macroblock portion to hold a value indicating if an
- 18       entry of the plurality of entries is the last entry associated with the first
- 19       destination macroblock information.
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- 23 4. The method of claim 1, wherein each entry of the plurality of entries has a
- 24       predetermined size.
- 25
- 26 5. The method of claim 4, wherein the predetermined size of each entry is the
- 27       same.
- 28

29 6. The method of claim 1, wherein each entry of the plurality of entries are  
30 arranged relative to each other entry of the plurality of entries to indicate  
31 the first order.

32  
33 7. The method of claim 1 further comprising the step of:  
34 generating a first estimated macroblock information for a first destination  
35 macroblock, wherein the first destination macroblock information  
36 is based upon at least a portion of the first plurality of macroblock  
37 information and the first destination macro block is downsampled  
38 relative to the source macro block.

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40 8. The method of claim 5, wherein the first index table includes a plurality of  
41 entries, each one of the plurality of entries comprising a pointer portion to  
42 hold a value indicating a location of a source macroblock information and  
43 an end of destination macroblock portion to hold a value indicating if an  
44 entry of the plurality of entries is the last entry associated with the first  
45 destination macroblock information.

46  
47 9. The method of claim 8, wherein each entry of the plurality of entries are  
48 arranged relative to each other entry of the plurality of entries to indicate  
49 the first order.

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51 10. The method of claim 9, wherein each entry of the plurality of entries has a  
52 predetermined size.

53  
54 11. The method of claim 10, wherein the predetermined size of each entry is the  
55 same.

56  
57 12. The method of claim 7 further comprising the steps of:  
58 accessing a second index table;

accessing the first plurality of source macroblock information in a second  
order at the video decoder to generate a second decoded image,  
wherein the second order is based upon the second index table and  
the first plurality of source macroblock information are associated  
with a source macroblock;  
accessing the second plurality of source macroblock information to  
generate a second estimated destination macroblock information.

13. The method of claim 10 further comprising the steps of:

generating a first macroblock based upon the first estimated destination  
vector, and a second macroblock based upon the second estimated  
destination vector, the first and second macroblocks are to be  
displayed simultaneously in real time.

- 1 14. A method comprising the steps of:  
2 storing video source macroblock information for each source macroblock  
3 of a first plurality of source macroblocks;  
4 determining an index table having a plurality of entries, the index table  
5 based upon a video source resolution and a video destination  
6 resolution, wherein a location of each source macroblock  
7 information for each macroblock is referenced by a corresponding  
8 entry of the index table; and  
9 storing the index table.  
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- 11 15. The method of claim 14 further comprising the step of:  
12 determining a data instruction packet to be processed by a portion of a  
13 video transcoder, wherein the data instruction packet identifies a  
14 location of the index table.  
15
- 16 16. The method of claim 14, wherein the portion of the video transcoder is a  
17 video decoder portion.  
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- 19 17. The method of claim 14, wherein the portion of the video transcoder is a  
20 video encoder portion.  
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- 22 18. The method of claim 14, wherein the portion of the video transcoder is a  
23 video encoder portion and a video decoder portion.  
24
- 25 19. The method of claim 14 wherein each entry of the index table has a common  
26 size.  
27
- 28 20. The method of claim 14, wherein the index table includes an end of  
29 macroblock indicator to indicate a portion of the index table associated  
30 with a destination macroblock.  
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32 21. The method of claim 20, wherein the end of macroblock indicator is stored as  
33 a value within a field of an index table entry.

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1 22. A system comprising:  
2 a first input port to receive source video data;  
3 a controller portion coupled to the first input port to determine macroblock  
4 information data corresponding to the received source video data,  
5 wherein the macroblock information includes motion vector and  
6 quantization information;  
7 a first memory control portion coupled to the controller portion to save a  
8 plurality of source macroblock information corresponding to the  
9 source video data; and  
10 an index table generator coupled to receive a size indicator of a destination  
11 image and to generate an index table identifying a first portion of  
12 the plurality of source macroblock information to be used to  
generate a first destination source vector, the index table based  
upon the size indicator of the destination image.

13 23. The system of claim 21 further comprising:  
14 a second memory control portion coupled to retrieve source macroblock  
15 information based upon index table entries;  
16 an encoder portion coupled to the second memory control portion to  
17 generate destination vectors based upon the retrieved source  
18 macroblock information.  
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23 24. The system of claim 21, wherein the index table generator is implemented  
24 using a general purpose processor core.